

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An input device comprising:

a captive disc movably suspended over a sensor, said captive disc having an active surface facing said sensor;

wherein said sensor is adapted to take successive images of the active surface of said captive disc and compare the successive images to determine movement of said captive disc;

a horizontal spring allowing resistive movement of said captive disc in horizontal direction directions; and

a vertical spring allowing resistive movement of said captive disc in vertical direction directions.

Claim 2 (previously presented): The device recited in claim 1 further comprising:

frame housing said captive disc; and

wherein said horizontal spring adapted to center said captive disc within said frame.

Claim 3 (canceled).

Claim 4 (currently amended): The device recited in claim [[2]] 24 wherein said captive disc the active surface has a convex shape so a border area is out of focus of said sensor when said captive disk is in the focal plane.

Claim 5 (currently amended): The device recited in claim [[2]] 1 wherein;

said active surface comprises a navigation area and a border area, said border area generally surrounding said navigation area; and

said sensor distinguishes between different patterns of the navigation area and the border area and suppresses any movement determined from the border area.

Claim 6 (canceled).

Claim 7 (currently amended): The device recited in claim [[2]] 24 wherein further comprising focusing lens adapted to focus light from a portion of the active surface to said sensor when the active surface is proximal to [[a]] the focal plane.

Claims 8 and 9 (canceled).

Claim 10 (currently amended): The device recited in claim [[2]] 24 further comprising a selection switch adapted to detect a user selection that moves said captive disk to a selection plane below the focal plane.

Claim 11 (currently amended): The device recited in claim [[2]] 1 further comprising a light source adapted to provide illumination on the active surface.

Claim 12 (currently amended): An input device comprising:

 a captive disc movably suspended over a sensor, said captive disc having an active surface facing said sensor;

 wherein said sensor is adapted to take successive images of the active surface of said captive disc and compare the successive images to determine movement of said captive disc;

 an illuminant adapted to provide light toward the active surface;

 a focusing lens for focusing light from the active surface onto said sensor;

 horizontal spring adapted to center said captive disc; and

 a vertical spring allowing resistive movement of said captive disk in vertical direction.

Claim 13 (canceled).

Claim 14 (currently amended): The device recited in claim [[12]] 26 wherein said captive disc the active surface has a convex shape so a border area is out of focus of said sensor when said captive disk is in the focal plane.

Claim 15 (currently amended): The device recited in claim 12 wherein;

said active surface comprises a navigation area and a border area area, said border area generally surrounding said navigation area; and

the sensor distinguishes between different patterns of the navigation area and the border area and suppresses any movement determined from the border area.

Claim 16 (currently amended): The device recited in claim [[12]] 26 further comprising a selection switch adapted to detect a user selection that moves said captive disk to a selection plane below the focal plane.

Claim 17 (currently amended): An electronic apparatus comprising:

a screen displaying information including an icon;

an input device for controlling the icon, said input device comprising:

a captive disc movably suspended over a sensor, said captive disc having an active surface facing said sensor;

wherein said sensor is adapted to take successive images of the active surface of said captive disc and compare the successive images to determine movement of said captive disc;

a horizontal spring allowing resistive movement of said captive disc in horizontal direction directions; and

a vertical spring allowing resistive movement of said captive disc in vertical direction directions.

Claim 18 (previously presented): The apparatus recited in claim 17 further comprising:

frame housing said captive disc; and

wherein said horizontal spring adapted to center said captive disc within said frame.

Claim 19 (canceled).

Claim 20 (currently amended): The apparatus recited in claim [[18]] 28 wherein said captive disc the active surface has a convex shape so a border area is out of focus of said sensor when said captive disk is in the focal plane.

Claim 21 (currently amended): The apparatus recited in claim [[18]] 17 wherein:

 said active surface comprises a navigation area and a border area area, said border area generally surrounding said navigation area; and

the sensor distinguishes between different patterns of the navigation area and the border area and suppresses any movement determined from the border area.

Claim 22 (currently amended): The apparatus recited in claim [[18]] 28 wherein further comprising focusing lens adapted to focus the active surface to said sensor when the active surface is proximal to [[a]] the focal plane.

Claim 23 (canceled).

Claim 24 (new): The device recited in claim 1 wherein:

 the horizontal spring returns said captive disk to a horizontal rest position said captive disk is released;

 the vertical spring returns said captive disc to a rest plane when said captive disk is released;

 said sensor determines the movement of said captive disk by taking the successive images of the active surface when said captive disc is proximal to a focal plane below the rest plane so that the active surface is in focus for said sensor; and

 said sensor does not determine the movement of said captive disk when said captive disk is released from the focal plane so that the active surface becomes out of focus for said sensor.

Claim 25 (new): The device recited in claim 24 wherein

 said active surface comprises a navigation area and a border area generally surrounding said navigation area; and

 the border area has a lower density than the navigation area so the border area becomes out of focus for the sensor faster than the navigation area when said captive disk moves from the focal plane to the rest plane.

Claim 26 (new): The device recited in claim 12 wherein:

the horizontal spring is adapted to center said captive disc to a horizontal rest position; the vertical spring is adapted to return said captive disc to a rest plane; said sensor determines the movement of said captive disk by taking the successive images of the active surface when said captive disc is proximal to a focal plane of below the rest plane so that the active surface is in focus for said sensor; and said sensor does not determine the movement of said captive disk when said captive disk is released from the focal plane so that the active surface becomes out of focus for said sensor.

Claim 27 (new): The device recited in claim 26 wherein

said active surface comprises a navigation area and a border area generally surrounding said navigation area; and the border area has a lower density than the navigation area so the border area becomes out of focus for the sensor faster than the navigation area when said captive disk moves from the focal plane to the rest plane.

Claim 28 (new): The apparatus recited in claim 17 wherein:

the horizontal spring returns said captive disk to a horizontal rest position said captive disk is released; the vertical spring returns said captive disc to a rest plane when said captive disk is released; said sensor determines the movement of said captive disk by taking the successive images of the active surface when said captive disc is proximal to a focal plane below the rest plane so that the active surface is in focus for said sensor; and said sensor does not determine the movement of said captive disk when said captive disk is released from the focal plane so that the active surface becomes out of focus for said sensor.

Claim 29 (new): The apparatus recited in claim 28 wherein

said active surface comprises a navigation area and a border area generally surrounding said navigation area; and

the border area has a lower density than the navigation area so the border area becomes out of focus for the sensor faster than the navigation area when said captive disk moves from the focal plane to the rest plane.